

WHAT IS CLAIMED IS:

- 1 1. An apparatus that implements services for a waveform application, the
2 apparatus comprising:
3 an object request broker that marshals data from the waveform
4 application for communication, wherein at least a portion of the object request broker
5 is implemented in hardware; and
6 an object request broker interface that communicates the marshaled
7 data using a memory pool, wherein at least a portion of the object request broker
8 interface is implemented in hardware.
- 1 2. The apparatus of claim 1, wherein the apparatus is an application
2 specific integrated circuit (ASIC).
- 1 3. The apparatus of claim 1, wherein the apparatus is a field
2 programmable gate array (FPGA).
- 1 4. The apparatus of claim 1, wherein the object request broker interface
2 comprises a pluggable protocol interface.
- 1 5. The apparatus of claim 1, wherein the object request broker interface
2 comprises a custom interface.
- 1 6. The apparatus of claim 1, wherein the object request broker is a
2 CORBA (Common Object Request Broker Architecture) broker.
- 1 7. The apparatus of claim 1, wherein the memory pool comprises a multi-
2 port memory pool.
- 1 8. The apparatus of claim 1, wherein the at least a portion of the object
2 request broker that is implemented in hardware comprises logic and data formatting
3 functions that are determined to consume excessive processor throughput for a
4 software application.
- 1 9. The apparatus of claim 1, wherein the at least a portion of the object
2 request broker interface that is implemented in hardware comprises an operating

3 system protocol stack.

1 10. A method of marshalling transactions for waveform application
2 communications using a CORBA (Common Object Request Broker Architecture)
3 broker, the method comprising:
4 marshalling data from a waveform application in a first communication
5 device, wherein at least a portion of the marshalling operation is implemented in
6 hardware; and
7 interfacing the marshaled data with a second communication device
8 using a memory pool, wherein at least a portion of the interfacing operation is
9 implemented in hardware.

1 11. The method of claim 10, wherein the at least a portion of the
2 marshalling operation that is implemented in hardware comprises logic and data
3 formatting functions that are determined to consume excessive processor throughput
4 for a specific software application.

1 12. The method of claim 10, wherein the at least a portion of the
2 interfacing operation that is implemented in hardware comprises an operating system
3 protocol stack.

1 13. The method of claim 11, wherein the hardware comprises an
2 application specific integrated circuit (ASIC).

1 14. The method of claim 11, wherein the hardware comprises a field
2 programmable gate array (FPGA).

1 15. A system for a joint tactical radio system (JTRS) compliant device that
2 provides communication at low power requirements, the system comprising:
3 a hardware-implemented object request broker (ORB) that marshals
4 data from a waveform application;
5 a pluggable protocol interface that communicates the marshaled data
6 from the hardware-implemented ORB, wherein at least a portion of the pluggable
7 protocol interface is implemented in hardware; and
8 a memory pool that communicates data from the pluggable protocol
9 interface directly and without transport overhead.

1 16. The system of claim 15, wherein the at least a portion of the pluggable
2 protocol interface that is implemented in hardware comprising logic and data
3 formatting functions of the ORB that are determined to consume excessive processor
4 throughput for a specific software application and an interface to a shared memory
5 pool.

1 17. The system of claim 16, wherein the hardware comprises an
2 application specific integrated circuit (ASIC).

1 18. The system of claim 16, wherein the hardware comprises a field
2 programmable gate array (FPGA).

1 19. The system of claim 15, wherein the JTRS compliant device is in an
2 unmanned craft.

1 20. The system of claim 15, wherein the JTRS compliant device is a
2 battery powered radio.